



**Chandler • Arizona**  
*Where Values Make The Difference*

# Civil Engineering Preliminary Technical Site Review Checklist

Log No.: \_\_\_\_\_

Date: \_\_\_\_\_

Project:		
Location:		
Reviewed by:		Phone #

The purpose of the preliminary review process is to provide a simple listing of City engineering requirements for proposed projects. Please do not treat this review as a complete list of requirements; it is merely the civil engineering initial review and assessment.

The requirements referred to on this checklist can be found within the City's Zoning Code, Technical Design Manuals, Standard Details and Standard Specifications booklets.

The reviewer has circled the items applicable to this project and, where necessary, has provided additional comments. Any item determined not applicable, based on this conceptual review, is shown with a strikethrough across the item number. If you have any questions, please contact the reviewer noted above.

Contact Public Works General Services at 480-782-3336 for information regarding system development fees, impact fees, impact fee credits and water meter fees. The City determines all fees based on accurate information provided by the developer's consultants.

The initial plan review submittal must be a complete package. Contact the front counter staff or your Project Development Administrator for submittal requirements. The Plan Review Submittal Checklist is required for all submittals. A complete submittal could reduce the number of plan review re-submittals.

The following documents describe the specific City of Chandler requirements:

*Zoning Code*

*Standard Details and Specifications*

*Technical Design Manual 1 - Water System Design*

*Technical Design Manual 2 - Wastewater and Reclaimed Water System Design*

*Technical Design Manual 3 - Storm Drainage System Design*

*Technical Design Manual 4 - Street Design and Access Control*

*Technical Design Manual 5 - Traffic Signal Design*

*Technical Design Manual 6 - Streetlight Design*

*Technical Design Manual 7 - Traffic Barricade Design*

*Technical Design Manual 8 - Landscape and Irrigation Design, Right-of-Way/Retention Basins/Parks*

*Fire Department Plan Review Guides and Standard Details*

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Civil Engineering Plan Review Section  
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Form No. UDM-32  
Rev 10-22-04

Submit the plan review fee with the initial plan set. The civil engineer must provide a Certificate of Area form with the first plan submittal in order for City staff to calculate the plan review fees due.

The following fee schedule will be used to calculate the plan review fee:

<b>Gross Acreage of Project</b>	<b>Plan Review Fee</b>
Not applicable	\$250
0 to 10	\$250 + \$75 per acre
10 to 25	\$1,000 + \$65 per acre over 10
25 to 50	\$2,000 + \$40 per acre over 25
Greater than 50	\$3,000 + \$30 per acre over 50
Street clean up fee (refundable)	\$100 + \$21.60 per acre

Buy-in fees must be paid prior to formal plan approval. The actual buy-in assessments will be calculated during the formal plan review process.

<b>Type</b>	<b>Location</b>	<b>Size</b>	<b>Length</b>	<b>Unit Cost</b>	<b>Cost</b>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**Costs are subject to the fees in effect at the time of plan approval**

Check if Required	Description	Comments
_____	1. Submit the civil engineering plans on 24" x 36" size sheets. The minimum height of all text must be 0.1" (one tenth of one inch).	
_____	2. An ADOT or MCDOT permit is required for a portion of the required improvements prior to plan approval. Sound wall study and sound walls may be required	
_____	3. The development is adjacent to a current City project/improvement district. Coordinate your plans with the City Project/Improvement District Engineer noted below:  _____	
_____	4. A traffic impact study is required. For the study requirements, refer to the <i>Scope of Work for Traffic Impact Studies</i> , March 2002, prepared by the Traffic Engineering Division.	
_____	5. The development is within an Airport Impact Overlay District. Submit an aviation easement form for the following airport prior to plan approval:  A. Stellar Airpark. B. Chandler Municipal Airport.	
_____	6. The developer must obtain approval from FAA, per <i>FAA Regulation, Part 77, Notice to Construct</i> . The City must receive a copy of the written approval from the FAA prior to plan approval. A bird mitigation study may be required if lakes are a part of the development.	
_____	7. A portion of the proposed development appears to be located within the FEMA 100-year flood zone. Flood Control District of Maricopa County approval is required prior to plan approval. This approval normally requires a long lead-time and may have a significant impact upon the development of the site.	

Check if Required	Description	Comments
_____	8. Engineering grading plans are required, consisting of a complete grading and drainage plan with required retention facilities. A registered civil engineer must seal the plans. A complete drainage report is required; see item no. 12.	
_____	9. The following items will affect the retention basin grading on the site: <ul style="list-style-type: none"> <li>A. Appearance per the Zoning Code.</li> <li>B. Amount of retention area allowed along the street frontage per the Zoning Code.</li> <li>C. Maximum allowable depth of retention is 3 ft. for a 2-hour 100-year storm plus 10%.</li> <li>D. Maximum side slopes are 4:1.</li> <li>E. A certified percolation test in accordance with C.O.C. Standard Detail No. C-109 is required in the locations of each proposed basin.</li> <li>F. Maximum basin drain time of 36 hours based on 50% of percolation test rate.</li> <li>G. Water lines, water service lines, and fire protection lines may not cross under retention basins. This does not apply to paved areas used for retention or landscape irrigation lines downstream of the backflow prevention device. A concrete cap must protect sewer lines passing under retention basins.</li> </ul>	
_____	10. All elevations shown on the plans must be referenced to an approved City of Chandler benchmark. All benchmarks are listed in the City of Chandler <i>Horizontal and Vertical Control Base List</i> , which is available at the Development Services counter.	
_____	11. The standard City General Notes and the applicable Standard Construction Notes are required on all plan sets.	
_____	12. Provide a separate drainage report including all hydrologic, hydraulic, and retention calculations in accordance with <i>Technical Design Manual 3 - Storm Drainage System Design</i> .	

Check if Required	Description	Comments
_____	<p>13. Register all proposed drywells with the Arizona Department of Environmental Quality (ADEQ). The following requirements also apply:</p> <p>A. All installations must conform to the City drywell Standard Detail No C-501.</p> <p>B. For any project involving hazardous materials (including fuels) that require a drywell, the drywell must include the “ENVIBRO” drainage system or equal per City Standard Detail No. C-502.</p>	
_____	<p>14. When a retaining wall is required, include on the civil plan the approved design detail as designed by a registered structural engineer. Include on the plan cover sheet an “As-Built” certificate to be signed by a structural engineer stating that the wall was constructed in accordance with the approved design.</p>	
_____	<p>15. Show all existing water wells and their Arizona Department of Water Resources registration numbers on the plans. If not registered, so note on the plans. Wells must be registered prior to disposition and documentation provided to the City. Contact the Municipal Utilities Department staff member noted below to coordinate well registration and disposition.</p> <p>_____</p>	
_____	<p>16. All public improvement plans must be a separate improvement plan set with a separate cover sheet. All private improvements may be included with the grading and drainage plans. Street, sewer, storm drain and reclaimed water lines are to be plan and profile design.</p>	

Check if Required	Description	Comments
_____	17. The following improvements are required to existing streets and alleys adjacent to the development in accordance with <i>Technical Design Manual 4 - Street Design and Access Control</i> .  A. Sidewalk installation. B. Additional pavement with curbing. C. Arterial street medians must be constructed. D. Alley must be paved. E. Deceleration lane.	
_____	18. When the development involves widening of existing street paving, cross-sections to scale at a maximum 50-ft. intervals are required to insure provision of an adequate and uniform street cross-section.	
_____	19. The following improvements to proposed streets and alleys adjacent to the development are required in accordance with <i>Technical Design Manual 4 - Street Design and Access Control</i> :  A. A half street improvement with a minimum of 24' pavement width of drivable surface is required for collector and local streets. B. Full street improvements. C. Alley improvements. D. Deceleration lane.	
_____	20. When arterial impact fees are paid in lieu of constructing the street improvements, 60% $\pm$ complete plans of the arterial street are required. The plans must include design for $\frac{1}{4}$ mile in both directions from site. The plans must be separate from any other design and be provided to the City on 4-mil mylar at the time of plan approval.	
_____	21. When arterial street improvements will be constructed by the developer, submit for approval full improvement plans including the frontage of the site, all required transitions and tapers as well as 60% $\pm$ design for $\frac{1}{4}$ mile in each direction.	

Check if Required	Description	Comments
_____	22. A performance bond and liability insurance will be required for the permitted construction work. The City will determine the bond amount from the quantities listed in the Offsite Construction Estimate to be provided by the project engineer. The bonding is to cover work within the public right-of-way only.	
_____	23. Permit fees are based on the signed and sealed Certificate of Quantities form, which covers onsite and offsite work. Street cut permit fees for utility connections are based on the age of pavement being cut; a street bore or alternate connection is preferred.	
_____	24. Draw to scale all required sections and typical sections. Show how the development grades blend with the surrounding properties.	
_____	25. The existing irrigation facilities must be undergrounded. Replace all existing CIPP irrigation lines with RGRCP. Contact SRP for design information and coordination.	
_____	26. Relocate the existing irrigation facilities out of the public right-of-way.	

Check if Required	Description	Comments
_____	<p>27. Creation of the boundaries of this site results in a land division in accordance with the definition of a subdivision. The following subdivision requirements apply:</p> <ul style="list-style-type: none"> <li>A. A preliminary plat is required and must obtain technical review and approval before formal submittal of the site improvement plans. Refer to the Preliminary Plat Review Checklist for technical content requirements. Contact planning staff for planning requirements. Council approval does not convey technical engineering review approval of the preliminary plat.</li> <li>B. Include the final plat with the first civil plan submittal.</li> <li>C. An amended plat or re-plat is required to be processed with the engineering plans.</li> <li>D. A minor land division plat is required.</li> <li>E. Provide a current title report, with a copy of all schedule "B" items (6 months old maximum).</li> </ul> <p><b>NOTE: Building permits will not be granted until a required final plat is recorded. Phasing of plats is not allowed.</b></p>	
_____	<p>28. Right-of-way or easement is required for:</p> <ul style="list-style-type: none"> <li>A. Existing streets or alleys.</li> <li>B. Proposed streets or alleys.</li> <li>C. Deceleration lane/s on existing streets.</li> <li>D. Deceleration lane/s on proposed streets.</li> <li>E. Water meter and/or fire hydrant.</li> <li>F. Public water line.</li> <li>G. Public sewer line.</li> <li>H. Other.</li> </ul>	



Check if Required	Description	Comments
_____	<p>29. Use the City's form for any easement dedications. Minimum requirements for easements are as follows:</p> <ul style="list-style-type: none"> <li>A. Properly executed (notarized but not recorded) document(s).</li> <li>B. Subdivision/project name.</li> <li>C. Copy of proposed or existing plat.</li> <li>D. Type of conveyance, easement or right-of-way required.</li> <li>E. Reason or purpose of the conveyance.</li> <li>F. Location and vicinity map showing major cross streets.</li> <li>G. Legal description with registered land surveyor certification.</li> <li>H. Exhibit with legal description showing the conveyance(s) with the MCR information and tract or dimensions, bearings, with tie to monument, true point of beginning, section, township and range.</li> <li>I. Plan sheet for project showing relationship to City property or right-of-way.</li> <li>J. Current title report, not more than six months old and exclusive to the parcels upon which the proposed conveyance is located.</li> <li>K. Documents indicating parties authorized to execute conveyance, e.g. partnership agreement, corporate resolution.</li> <li>L. For utility projects, prior rights documents and plans indicating location of existing facilities.</li> <li>M. Environmental approval, for fee dedications only.</li> <li>N. Executed in black ink.</li> </ul>	

Check if Required	Description	Comments
_____	<p>30. A minor land division plat is required in order to create less than four lots, change lot lines, dedicate right-of-way and/or grant easements. The following requirements apply:</p> <p>A. Current standard owners policy preliminary title report (no older than 6 months).</p> <p>B. ALTA survey.</p> <p>NOTE: Under certain conditions the City Engineer may allow dedication by warranty deed in which case all requirements under item 29 would apply.</p>	
_____	<p>31. An environmental site assessment in compliance with <i>Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Report</i> per A.S.T.M. E-1527, latest update, is required for any land being dedicated to the City.</p>	
_____	<p>32. Streetlights are required on all streets adjacent to the development. Refer to <i>Technical Design Manual 6 - Streetlight Design</i> - for design requirements. Some general requirements are noted below:</p> <p>A. Spacing, 180 to 200 ft.</p> <p>B. Luminaire size.</p> <p>1) Local streets – 9,500 Lumen.</p> <p>2) Collectors – 16,000 Lumen.</p> <p>3) Arterials – 30,000 Lumen.</p> <p>C. Luminaire mounting height.</p> <p>D. City Standard Detail Number for type of pole (SL1 for most installations, SL10 for City Center area, SL 16 for decorative poles on local or collector streets, or SL 17 where necessary along arterial streets for clearance from overhead power lines). New installations are to be consistent with the existing lights wherever possible.</p> <p>E. Must be installed at least 2.5 ft from the back of curb. Refer to <i>Technical Design Manual 4 - Street Design and Access Control</i> for approved locations.</p>	

Check if Required	Description	Comments
_____	<p>33. The following requirements apply to the proposed driveway installation. Refer to Figure 14 of <i>Technical Design Manual 4 - Street Design and Access Control</i> for more information:</p> <ul style="list-style-type: none"> <li>A. Deceleration lanes must be constructed. Taper length is minimum 100 ft. Holding bay length is 100 ft. minimum. Refer to City of Chandler Standard Detail C-231.</li> <li>B. Must be aligned with any existing driveways on the opposite side of the street or offset at least 100 feet from opposing driveways.</li> <li>C. Arterial streets: Full movements on arterials with medians are allowed only at <math>\frac{1}{2}</math> mile and <math>\frac{1}{4}</math> mile points. Full movement at <math>\frac{1}{8}</math> mi. points may be allowed. This applies to street intersections as well.</li> <li>D. Non-arterial streets: Must not be within 150 ft. of a non-arterial intersection measured from the right-of-way line.</li> </ul>	
_____	<p>34. Bus bays must be constructed. The geometrics are dependent upon whether or not a combined bus bay/deceleration lane will be constructed. Refer to City of Chandler Standard Details No. C-230 and C-231. A 7' x 30' bus shelter easement is required to be dedicated to the City of Chandler.</p>	

Check if Required	Description	Comments
_____	<p>35. The following water and sewer main improvements are required for the development. Refer to the <i>Technical Design Manual 1 - Water System Design</i> and <i>Technical Design Manual 2 - Wastewater and Reclaimed Water System Design</i>:</p> <p>A. Installation of a public water main within the street right-of-way.</p> <p>B. Installation of a public reclaimed water main within the arterial street right-of-way.</p> <p>C. Installation of a public sewer main within the street right-of-way.</p> <p>D. On-site water and sewer mains must be private.</p> <p>E. Infrastructure study.</p> <p>F. Public improvements are eligible for reimbursement.</p>	
_____	<p>36. Show the water meter and service line on the civil plans. Substantial savings may be realized on installation and monthly billing costs by installing separate meters for landscaping and domestic use.</p>	
_____	<p>37. City utilities that are installed along undeveloped property frontages may be eligible for a buy-back agreement. The developer must apply to be eligible. Contact the Development Services Division staff member noted below to obtain further information.</p> <p>_____</p>	
_____	<p>38. Backflow prevention devices are required on the potable water services.</p>	
_____	<p>39. The locations of existing fire hydrants adjacent to the development will affect the number of additional hydrants required to serve the site. A hydrant is required within 150 ft. of each fire department connection (FDC) and generally at 300' intervals throughout the development.</p>	

Check if Required	Description	Comments
_____	<p>40. Fire service is to be a double detector check valve assembly in accordance with City Detail Nos. FD101 or FD102. Fire service with onsite hydrants and multiple buildings will be a looped system with double detector check valves and fire department connections (FDC's) located 6' to 10' from the curb at 2 separate entry driveways. All FDC's are to be within 150' of a public fire hydrant. Private hydrants on a fire service line are not to be within 300' of an FDC. Use post indicator valves (PIV's) for sectional control and riser control valves for each building service line. No underground valves are permitted.</p> <p>For multi-family buildings, the fire hydrant line is to be looped with double check detector check valves at each end and the building fire service will be from the domestic service line. The FDC's for multi-family shall be 1-1/2 inch female swivel connections located on the building under the audio/visual (horn/strobe) device for the building. The FDC shall have a minimum 3-foot unobstructed clearance around and in front of the device, in accordance with Chandler Fire Department standards. The FDC shall be installed so the top of the FDC is 36 inches from finished grade. The FDC and backflow for club houses, sales offices, maintenance buildings, ramadas and pool equipment buildings are required to be installed per FD101 Detail from the fire hydrant line. Refer to the <i>Chandler Fire Department Plan Review Guides and Standard Details</i> for the underground checklist and the site plan checklist.</p>	
_____	<p>41. Show the sewer service line on the civil plans. In some cases, the sewer main that is tied into it will control the buy-in fees noted above. Industrial uses will require the installation of an industrial waste sampling manhole at the property line. Refer to <i>Technical Design Manual 2 - Wastewater and Reclaimed Water System Design</i> for details. During the plan review process, complete and return the Wastewater Discharge Questionnaire</p>	
_____	<p>42. Provide a master utility plan to scale on one sheet showing all water, sewer and storm drain lines, sizes, valves and hydrants to facilitate verification of spacing and locations of conflicts.</p>	

Check if Required	Description	Comments
_____	43. The development is located in a City reclaimed water service area. A Reclaimed Water Application and Agreement must be on file prior to plan approval.	
_____	44. Include the proposed reclaimed water turn-out on the improvement plans.	
_____	45. The overhead utility lines less than 69 KV on or adjacent to this site must be undergrounded.	
_____	<p>46. The existing overhead utility power poles must be relocated 2' inside the public right-of-way line. Please add the following note to the cover sheet:</p> <p><b>The improvements shown on this set of plans will not be fully approved by the City and the Certificate of Occupancy will not be issued until the overhead utility line undergrounding and/or power pole relocation requirement has been satisfied.</b></p> <p>NOTE: A waiver may be requested for redevelopment and/or infill projects.</p>	
_____	<p>47. The refuse container locations and quantities must meet the following requirements:</p> <p>A. Refuse truck route turning radii are: 26 ft. internal and 42 ft. external.</p> <p>B. Excessive backing of refuse trucks, typically 50 ft., is prohibited.</p> <p>C. Commercial/industrial refuse container quantities are not regulated.</p>	
_____	<p>48. The following requirements apply to proposed phasing:</p> <p>A. Construct all rough grading within Phase I.</p> <p>B. Construct all offsite improvements within Phase I.</p> <p>C. Maintain adequate access to all sections of the development at all times.</p> <p>D. Install sufficient refuse containers to service each individual phase. Maintain access to the containers at all times.</p>	

Check if Required	Description	Comments
_____	49. The arterial street median landscaping adjacent to this site shall be designed or upgraded with this project. Include the new or upgraded design with the first submittal of civil construction plans. Contact the Public Works Department staff member noted below for minimum design standards.	
_____	50. Refer to the latest City of Chandler checklists, standards, specifications and design manuals for more detailed requirements.	